

# +3 CONTACT

*The Monthly Magazine for The +3 Users' Group*

**ISSUE: 16**

MULTI-COLOURED  
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*Mail Order Hardware*

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**TECHNOTALK:**  
**DIY SPEECH SYNTHESISER**  
*Programming in a 64K environment*

*Also in issue 16:*

- **GAMES ZONE** reviews **SIM CITY**,
- **New PD library additions**,
- **Resubscription offers**,
- **+3UG News**,
- **And much more!!**

**TECHNOTALK PD LIBRARY HELPLINE GAMES ZONE**

### The Gaffer's Bit....

Welcome to issue 16 of +3 CONTACT. If you've just had a quick flick through the magazine you've probably noticed that the quality of the text and other presentation has been improved. If you're wondering how the heck we managed to do this using a Spectrum and PCG's Desk-Top Publisher, the simple answer is that we didn't.

+3 CONTACT is now produced using a professional publishing system consisting of an Amiga B2000, 1Mb Amiga A500 and the Pagestream desk top publishing software. Apart from a few pages in this issue, this and all future issues will be produced using this system. Not only does it allow us to produce the magazine more quickly, it also improves the magazine immensely, and in the coming months we will be using the same system to produce the magazine firstly in what is known as Postscript format and secondly (in the first half of 1991) in Linotronic format. This will mean that the print quality of +3 CONTACT will equal that of professional magazines.

This month also sees a change of address for the PD library. Full details are in the +3UG News column on page 4. Our CHALLENGE column idea seems to have been given a general veto by the membership with only a small number of members entering. The winners and runners-up out of those who did enter will be announced in next month's +3 CONTACT.

We also learned last month that our mail order service is much more popular than we imagined. After last month's column we received so many orders that we emptied our suppliers' warehouse of several product lines. This caused a slight backlog to build up while they reordered more stocks for us, and we now have enough stock to deal with a similar batch of orders.

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# News Watch

## Music Writer bug fixed

A bug affecting use of drive B: in *Music Writer* has forced publisher Garry Rowland to issue a new version of the program. Although the bug (reported by +3UG member Ken Davies) does not affect usage of the program when using the internal 3" drive or RAM disc, users with an external drive are advised to obtain the new version of the program. Fortunately, for existing *Music Writer* users the new version is available free of charge upon request. Prospective *Music Writer* purchasers will receive the new version as standard.

Garry Rowland has also extended his special offer to +3UG members. Until the end of November, members can obtain *Music Writer* and a free copy of *UTILITY.XTN* (which adds new features to the main program) for just £21.95 - a saving of £5! To be eligible for this special offer enclose part of a recent issue of +3 CONTACT as proof of membership with your order. See issues 12 and 15 for reviews of *Music Writer* and *UTILITY.XTN*. Garry Rowland's address is: Garry Rowland, PO Box 49, Dagenham, RM9 5NY.

## Pretender to the throne

+3UG member P.Naughton has launched a pretender to Music Writer's throne. *Childs Play* is a music composition program aimed at children and those new to music. Although *Childs Play* doesn't have the wealth of features that *Music Writer* has, Mr Naughton has priced *Childs Play* competitively at £8 and it even has features that *Music Writer* hasn't (yet). These include the ability to play music through a MIDI synth.

MIDI leads are also available for £7.50, or £6 if ordered with *Childs Play*. What's more, +3UG members can obtain copies of *Childs Play* for the

discounted price of just £7 (send part of a recent copy of +3 CONTACT as proof of membership).

We're hoping to get a full review of *Childs Play* ready in time for next month's +3 CONTACT. In the meantime, you can obtain full details of the program from the following address: P.Naughton,

2 The Gills,  
Otley,  
Leeds,  
LS21 2AH.

# +3UG News

## PD Library

This month sees a major step towards the centralisation of all the +3UG's services. In the past, the different addresses for the PD library and the other +3UG services have caused a bit of confusion to creep in. As from this month, the PD library's address will be the same as the main +3UG address, i.e. 57 LOVERS WALK, DUNSTABLE, BEDS, LU5 4BG. The old address will no longer apply.

As well as changing the address we're also improving the service. Firstly, there's more great new programs which include several excellent European programs which we have converted the instructions and on-screen text into English. +3UG members will be the first to be able to obtain these European programs as we are the only PD library in the UK to have copies of them.

Secondly, there is a new version of PD Infobase which allows you to scrutinise the entire contents of the PD library in even more detail than was possible before. What's more, PD Infobase is now **FREE OF CHARGE!**

Thirdly, we've introduced some great money saving offers (if the PD prices weren't low enough already!) for members ordering more than £3 worth of software at one time.

## Telephone Helpline

Due to the enormous success of the Telephone Helpline, we've decided to extend the opening times to allow more callers to get thorough. The new opening times are as follows: **WEDNESDAYS, THURSDAYS and FRIDAYS** from 2pm until 4.45pm.

We hope this will lessen the strain on the service and allow even more members to get in contact with us. Can I also take this opportunity to remind everybody that it may help us to deal with your query more swiftly if you are sitting in front of your +3 when you call, with any relevant software already loaded. Thank you.

## Articles

We always welcome members to send us articles for inclusion in +3 CONTACT. Although we cannot offer you a vast fortune in gold nuggets (or even chicken McNuggets) for your work, you will be benefitting the +3UG by simply sending in your article. So if you think you could write a good article, think of a +3 related subject and write about it. Then send it in and as long as its not unter drivet then we'll print it in the next issue of +3 CONTACT.

# GENESIS

Where else can you find a magazine on a disc containing reviews, news, hints, tips and over 100K of top quality programs for as little as £2.25?

Issue 5 of GENESIS is here and after the success of issue 4 in its new-look format, we're sure that you'll enjoy issue 5 just as much. We think we've come up trumps with the free programs we are putting on the disc too, as you can see from the list on the right. However, we are still adding programs right upto the last minute and there should be at least 2 other major programs to add to the list.

Unlike other tape/disc magazines which provide free programs, GENESIS comes with the 'GENESIS BOOKLET' which is an A4-sized guide to using the disc magazine itself and all the programs on the disc. All the instructions are as detailed and provide an excellent insight into using the programs.

As well as the free program we have included in issue 5, the magazine section contains the following articles:

- All the latest news and views,
- Program reviews,
- Pascal Tutorial - our in-depth tutorial to this excellent language continues,
- News about some of the programs which will be appearing in issue 6 of GENESIS,
- And of course, much much more!

COME AND SEE GENESIS 5 IN ACTION AT THE ALL FORMATS COMPUTER FAIR at the Royal Horticultural Hall, Westminster, London on SUNDAY NOVEMBER 4th.

## EARN UPTO £100!

We aim to provide everyone who buys GENESIS with not only the best disc magazine available, but also the very best programs around. To help us to achieve the latter aim, we need you to contribute your programs for inclusion on future issues of GENESIS. They must be your own work and you can elect to have them included as public domain software or as copyright protected software. As an incentive, we are offering £100 of prize money each issue which is split between the authors of all the programs which are chosen for inclusion. The £100 is split up according to how good your program(s) is in comparison to others in the same issue - so the bigger and better your program is, the more you get paid for it! More information can be found in issue 5 of GENESIS.

We aim to keep the quality of content high and with your programs, not only can you earn money but you get all the fame and fortune that comes with having your program included in publication which is already attracting over 200 readers every issue.

GENESIS Issue 5 is available NOW!!!

PRICE: £4.25 (OR only £2.25 if you supply blank 3" disc).

Please make cheques/PO payable to "NEW ASPECTS" and send your orders to: NEW ASPECTS, 57 Levers Walk, Dunstable, Beds, LU5 4BG.

# GENESIS

## DISK CONTENTS BASIC COMPILER

This excellent program will convert BASIC programs into fast machine code. It comes complete with full instructions and example programs for you to compile.

## TRAIL RACER

This commercial-quality game an excellent example of PD at its best. Fast colourful graphics and excellent sound (including speech) make this game an instant classic on the PD scene.

## 32x42 Character

This utility enables any text to be displayed on the screen, instead of the normal 22x32 screen format, this routine provides you with a 32x42 screen. Full instructions are included in order for programmers to use this utility in their own programs.

## 48k RAM DISC

This utility for Spectrum 48k users allows a RAM disc to be set up in memory which allows files to be loaded, saved and erased, just like on the Spectrum 128's RAM disc. A must for any user serious about his Spectrum.

## FORTH

We are currently putting the finishing touches to a complete implementation of the FORTH language which has been submitted to us from one of our European readers. As well as the standard Forth language, routines are built-in to enable full use of the Spectrum's graphics screen, sound chip and printer.

An introduction to the language itself will be included in the Genesis Booklet to enable you to get to grips with the language as soon as possible.

# NEW ASPECTS

# TECHNOTALK

We haven't had a mega-technical programming article in +3 Contact for ages (well, at least a couple of months), so here's one on 64K Paging by Miktor The Weird (alias M Harris), the same man who wrote the great Ghost program...

OK. So you've got a +3, but what can it do that any other Spectrum can't (apart from being less compatible than that is!)? Well, there is one little known thing called 64K or Extended Paging. This allows you to totally lock out the normal ROMs and replace the code with your own, the advantage being that you don't take up any user memory. So if you hate ZX BASIC or just want to run another language you can put it in the ROM space and away you go. Other uses could be disassemblers, assemblers, etc.

Now the disadvantages. Obviously you can't use ROM routines or DOS routines unless you write them into your own programs.

The table below shows the possible pages that you can use:

Page	16K Pages	Disk Off	Disk On	Notes
A	0,1,2,3	01H	09H	No screen, fast.
B	4,5,6,7	03H	0BH	2 screens, slow.
C	4,5,6,3	05H	0DH	Nearly normal set-up. Most slow, 1 Fast
D	4,7,6,3	07H	0FH	As "C" but you need to page in screen 2

As you can see, pages A and B on their own are pretty useless, but if you copy the DOS ROM into page 0 and your own code into page 4 then use page B you can switch between A and B whenever you need to use the disk. It takes quite a bit of thought and care as the stack will be lost until you switch back so altering the value of SP will probably cause a crash.

If, on the other hand, you don't mind losing 16K you could use page C in place of page B.

Page C is probably most useful as it has a screen and fast/slow ROM pages and you only need to switch once to use it.

## ACTUALLY DOING IT

First make sure your program works by assembling it into normal RAM as you won't be able to rescue it if anything goes wrong. If it works OK then re-assemble it to 0 (remembering to keep the RST 38H routine in place), now add a piece of code to move your main code to the bottom page, ie:

```
DI
LD A, Bottom page; either 10H or 14H (14H for page D
; to page in screen at the same time)
OUT BC,7FFDH
OUT (C),A
LD HL,Start of your code
LD DE,C000H
LD BC,4000H
LDIR
LD BC,1FFDH
LD A,Page number disk on/off; ie page C with disk off is 05
OUT (C),A
EI
JP start
```

As a demonstration, use 14H for the bottom page, 0000 for HL and 05 for the actual page number. That will set up a simplified ghost copy of ROM which you can muck about with. Start, by the way, is 0 or 11B7H.

All the 128K's extras are available: printer, RS232, etc as long as you write your own driver routines.

The only 16K paging you can do whilst using 64K paging is screen swapping, all other paging is carried out but you won't notice any difference as the whole of memory is treated as one block.

# Giving the Plus 3 a voice

An easy to build Speech Synthesiser for the Spectrum +3

This article describes how to build a speech synthesiser and amplifier and fit it to the Plus 3 via an interface and gives a BASIC program to make it work.

The idea is based around a *Maplins* SP0256 kit (order No. LP10L) priced around £15 and uses the allophone method of achieving a synthesised voice sound. The SP0256 chip has sixty-four allophone sounds stored within it. These are selected from a list by the programmer to make up the words required. A BASIC program is then written and the allophone codes required are placed in a DATA statement and called by the Plus 3 in the necessary order and timing to make synthesised speech.

The kit which requires building (this is very simple and well explained in *Maplin's* leaflet) consists of a circuit board and components. The board is only about 2.75 inches square and needs a small 8 ohm speaker adding to make the kit complete. Full instructions are included but a copy of *Maplin's Electronic Magazine* No 36 for Feb/Mar 1990 gives a very good article on the design features and is obtainable from *Maplins* price £1.20.

In order to drive the speech synthesiser circuit from the Plus 3's expansion socket an interface is necessary. I use the *DPC Interspec* but I see no

reason why the *Robotek* interface from *Datel Electronics* cannot be used. However, this does not have a data input to the Plus 3 and cannot therefore handshake with the synthesiser but a PAUSE statement in the program can mostly overcome this problem.

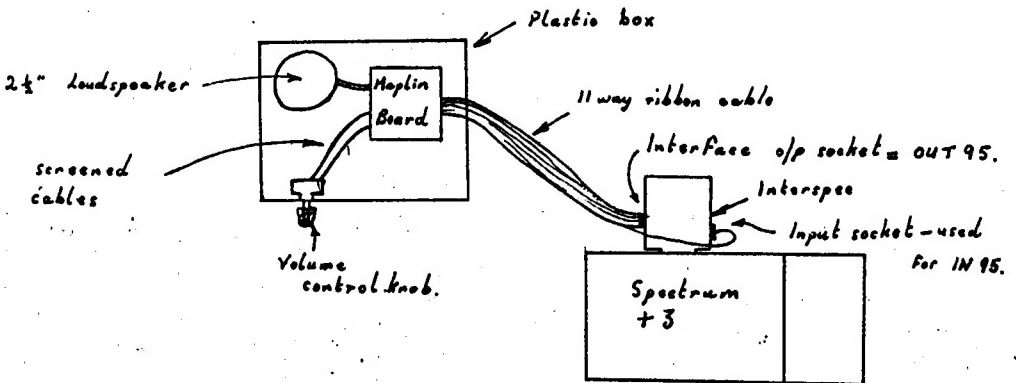
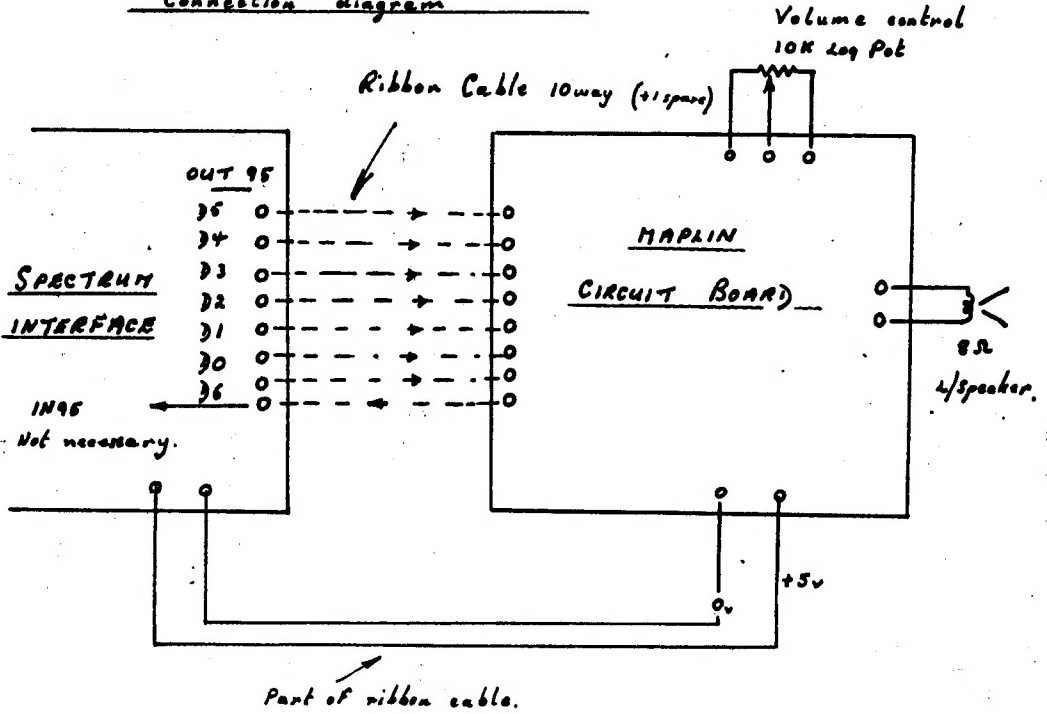
The circuit board, speaker and volume control should all be mounted in a small plastic box and connected to the interface unit by a ribbon cable. The *Interspec* also supplies 5 volts power to the synthesiser.

The following BASIC program enables the words "Hello I am a computer" to be synthesised.

```
10 REM Spectrum Speech
   Synthesiser
20 OUT 63,0: REM Turns
   relays off in the Interspec
30 FOR I=1 TO 21: REM No.
   of datum
40 READ A: PRINT A:;
   PRINT " ";
50 OUT 95,A+64
60 LET B=IN 95
70 IF B=4 THEN GOTO 60
80 OUT 95,A: PAUSE 20: REM
   PAUSE only needed if interface
   can't read IN 95
90 NEXT X
100 DATA 7, 45, 30, 4, 1, 6, 0,
   26, 16, 1, 26, 1, 42, 15, 16, 9, 49,
   22, 13, 52, 0
```

After you have typed in this program, type RUN and you should immediately hear speech.

Connection Diagram





# HOW TO CONTACT US

This page contains all the names, addresses and telephone numbers that you need in order to use the various services that the +3UG provides.

- *GENERAL ENQUIRIES* • *PD LIBRARY*
- *MEMBRSHIP RENEWALS* • *GARNER DESIGNS*
- *MAIL ORDER SERVICE* • *ARTICLE CONTRIBUTIONS*

*Address: GARNER DESIGNS,  
57 Lovers Walk,  
Dunstable,  
Beds,  
LU5 4BG.  
Telephone: (0582) 472067  
Fax: (0582) 696114 (FAO: D.Garner)*

- *POSTAL HELPLINE* • *TAPE LEAD ORDERS*

*Address: Gary Stimson,  
4 Fox Covert Drive,  
Rode,  
Northants,  
NN7 2LL.*

- *ON LINE HELPLINE*

**MICRONET - MBX 582472067** We try to answer all queries within 36 hours.

- *TELEPHONE HELPLINE*

Telephone: (0582) 472067 The Telephone Helpline is now open on **THURSDAYS** as well as Wednesdays and Fridays, from 2pm until 4.45pm.

# RAINBOW

NEW ENHANCED VERSION

Programmed by NORMAN GREEN

Published by Garner Designs

Reviewed by J.R. Cleveland

Up to a few weeks ago, it was only owners of the +D and Disciple interfaces who could print colour screen dumps from their Spessies on the Star LC10C printer - the colour version of the well-known LC10 - thanks to a special software routine supplied by MGT. There was no easy way of getting this to work on the +3, which was thus consigned to the abyss of monochrome. At last, thanks to Norman Green and Garner Designs, the +3 firmament has been lit up by the multi-hued beams of a mighty "Rainbow", affording us those colour screen prints we've long been craving. Already the initial version of Rainbow has been upgraded to a new enhanced version 2 which offers many more options to the user, so let's start by taking a look at these.

## The Options

Rainbow is very easy to use, and everything you need to know is clearly set out in the instruction screen (below left) which greets you on load-up, and the options menu (below right). You have only to type in the filename of the SCREEN0 and press ENTER, and the picture appears on the screen as usual, whereupon the printer lurches obstreperously into action. By default, the SCREEN0 is loaded from drive A, and the top 22 lines printed, with the left margin at 7, which nicely centres it on A4 paper, and the line spacing at 21/216" (same as for the +3 Basic COPY command). All these defaults can be changed

from the Options menu, and I need only comment briefly on some of them -

Option A - stops the program from issuing a "reset" command (ESC @) to the printer. This option would be useful if you wished to change printer settings (other than those set by Rainbow itself) before starting to print, though I've yet to think of anything I wanted to change that Rainbow doesn't already cater for.

Option B - sets left margin in the range 0 - 15.

Option C - sets line spacing (in units of 216ths of an inch) in the range 18 to 24. A spacing of 24 can be useful to alleviate the banding effects which occur in solid blocks of colour, though of course it produces a proportionate increase in the height of the print-out relative to its breadth.

Option D - allows any horizontal slice of the SCREEN0 to be printed, from a single line right up to the full 24 lines. There is one minor drawback here in that the bottom two lines (22, 23) come out in colour only if the whole screen is printed from the top (line 0). If you choose to start at, say, line 18, then lines 22 and 23 come out in monochrome.

Option E - chooses default drive A, B, M or T.

One thing missing is an on-screen display of the settings of options B,C,D and E, which would have been useful to check before launching into print.

## INSTRUCTIONS

Switch on the LC10(C), load a sheet of white paper and go ON LINE.

Have the chosen screen0 file in drive "A" (unless default has been changed by "OPTIONS") and ENTER filename.

Your file will transfer to the screen and then be printed by the LC10(C) in full colour (INK and PAPER).

For "OPTIONS" simply press ENTER key without filename.

ENTER

## OPTIONS

- A CANCEL PRINTER RESET
- B CHANGE LEFT MARGIN
- C CHANGE LINE SPACING
- D SELECT BLOCK TO BE PRINTED
- E CHANGE DEFAULT DRIVE
- F CAT DEFAULT DRIVE TO SCREEN
- G RESTORE ALL ORIGINAL SETTINGS
- H RETURN TO "INSTRUCTIONS"

Press appropriate letter

## THE COLOURS

Spectrum colour	ribbon colours used	subjective impression	time for 10 rows
0 black	black	dark grey	2' 03"
1 blue	cyan	lightish blue	3' 28"
2 red	magenta	magenta	3' 28"
3 magenta	magenta + cyan	violet	4' 15"
4 green	yellow + cyan	green	4' 15"
5 cyan	(yellow) + cyan	greenish light blue	8' 28"
6 yellow	yellow	yellow	3' 28"
7 white	-	white	2' 03"

The LCIOC's colour ribbon has yellow, magenta, cyan and black stripes along its length, and other colours are produced by "mixing" these in various proportions. This is achieved by printing a row of dots in one colour and then overprinting the same row with dots of another colour until the required mixture is obtained. This works well enough in text mode, but graphics colour printing is inevitably somewhat handicapped by the printer's limited resolution and rather primitive mechanism. Solid blocks of colour tend to look uneven (especially compound colours such as green), and are affected by horizontal striation (banding), more noticeable with the darker colours, although this can be alleviated by increasing the line spacing as mentioned earlier.

For each Spectrum screen colour, the above table shows the ribbon colours deployed by Rainbow to emulate it, an impression of the resulting print colour, and the time taken to print a solid screen-wide block of that colour ten screen-rows deep. The dot density is not sufficient to give a really pitch black - though think what it would do to your ribbon if it were! The main difficulties, however, stem from the LCIOC's apparent inability to produce a convincing red or blue. If its "red" is really magenta, and its "blue" is closer to Spectrum cyan than Spectrum blue, then how are we going to print Spectrum magenta and cyan when these colours have already been appropriated for red and blue? Rainbow's answer is to print magenta as violet, and cyan as a greenish blue (turquoise) produced similarly to green but with less yellow. The result falls half way between green and blue and

is only slightly distinguished from them. If you put blue or green characters on a cyan background, they will not stand out in print nearly as distinctly as they do on the screen (at least, not to this reviewer's jaded peepers!). One final point on colour quality - Rainbow makes no attempt to emulate the BRIGHT attribute.

Not surprisingly, the compound colours (magenta, green, cyan) take longer to print as they require more passes of the printhead. Singular indeed however is the printing of Spectrum cyan where there is a mysterious pause of about 13 seconds before printing of each line commences. Thus printing ten cyan screen-rows is punctuated by 20 such intervals (since each screen row translates into two print-lines), and that accounts for the anomalous eight and a half minutes total.

Overall print times

Printing times necessarily vary according to the content of the picture, but a full colour 24 line SCREEN#, such as the ARTIST II loader screen or the +3 internal test card screen, takes about fifteen minutes. The absolute minimum for a standard 22 line dump is just over four and a half minutes, which is how long it takes to "print" an entirely blank SCREEN#. Performing this experiment reveals a feature of RAINBOW which may not be apparent from a fully filled SCREEN# dump, namely, it provides the printout with a rectangular thin-line border.



## Excursions &amp; Diversions

Before bringing this review to a conclusion, I'd like to digress into two or three Rainbow-related topics, beginning with - oh no! - yet another hack-attack on dear old Artist 2, then some suggestions on file organisation to produce a really cracking art utilities disc, and lastly some observations on colour printing for DTP.

## RAINBOW &amp; ARTIST 99

If you intend to create colour screens with Artist II and print them with Rainbow, then I suggest -

```
LOAD
SAVE
RAINBOW
CAT
ERASE
DISK
SAVE FILL
LOAD FILL
COL.DUMP
LARGE DUMP
SMALL DUMP
GREY DUMP.L
GREY DUMP.S
BASIC
```

- putting your Artist and Rainbow program files on the same side of a fresh disc.
- providing a suitable "DISK" menu program from which you can access not only Artist and Rainbow but also the other programs in the Artist suite (screen compressor and sprits/font designer). Note that you will not need the original Artist DISK program (which is the same as the file named "ARTIST"), nor the Rainbow DISK program (which is the same as RAINBOW.BAS).
- altering the relatively useless VERIFY, OTHER and Pg.MAKER options in the Artist STORAGE menu to RAINBO, DISK and COL.DUMP respectively as illustrated, so that RAINBO will save your Artist screen to the M drive with the filename "PIC.SCN" and then load Rainbow; DISK will load the DISK program of whatever disc you have in the drive; and COL.DUMP will load the Rainbow CODE, print a colour dump of all or part of the Artist screen, with the default margin and line spacing mentioned earlier, and finally return you to Artist "as you were".

The words VERIFY, OTHER and Pg.MAKER occur in the ARTCODE.BIN file beginning at addresses 29651, 29700 and 29750 respectively, and can be altered by POKING in the ASCII codes of the replacement letters (with a single space after "DISK"), either from Basic, or more conveniently with the Multiface 3 "toolkit". (See +3 manual pages 259-60 for codes.) We then re-SAVE ARTCODE.BIN CODE 26096,39440.

All that remains is to modify the Artist "BASIC" program to implement our new options by MERGEing in the patch program listed below and finally re-SAVEing "BASIC" line 98. (Don't do this while the Artist CODE is in memory or you'll get an "Out of memory" message.) Lines 15 and 92

execute the DISK and RAINBO options respectively, in each case calling the subroutine at lines 94-96 to restore the normal Spectrum screen colours and character set. Line 4 executes the COL.DUMP option by saving to RAMdisc not only the Artist screen but also that part of the Artist CODE which is to be temporarily overwritten by the Rainbow CODE. After the latter is loaded, the subroutine at lines 21-41 (adapted from RAINBOW.BAS) is called to prompt for the number of lines to be printed and the start line. Just pressing ENTER at either of these prompts selects the defaults (22 lines starting at line 0). Finally the Artist CODE is restored and the RAMdisc cleared out for re-use.

```
4 CLS: IF a=VAL "207" THEN PRINT # NOT PI; TAB VAL "7"; "One
moment please": SAVE "a:pictemp" CODE b,c: SAVE "m:arttemp" CODE
VAL"39000",VAL"24500": LOAD "rainbow.bin" CODE: RANDOMIZE USR VAL
"14495": GO SUB VAL"21": LOAD "m:pictemp" SCREEN0: FOR n = SGN PI
TO g: RANDOMIZE USR VAL "3200": NEXT n: RANDOMIZE USR VAL "60000":
LOAD "m:arttemp" CODE: ERASE "m:arttemp": ERASE "a:pictemp": RUN
15 IF a=VAL "210" THEN GO SUB VAL "94":CLEAR VAL"65367":LOAD "disk"
21 INPUT INK VAL"7"; "No. of lines (1-24) [default=22]"; LINE f0
22 IF f0="" THEN LET f=NOT PI: GO TO VAL "28"
23 FOR n=SGN PI TO LEN f0: IF f0(n)<"0" OR f0(n)>"9" THEN GO TO
VAL "21": NEXT n
24 LET f=VAL f0: IF f< SGN PI OR f> VAL "24" THEN GO TO VAL "21"
25 POKE VAL "60401",VAL "0"0 (VAL "8" +INT [(f-SGN PI)/VAL "8"]):
POKE VAL "60406",VAL "256"0 (f/VAL "8" -INT (f/VAL "8"))
26 IF f= VAL "24" THEN RETURN
28 INPUT INK VAL "7"; "Start line (0-"; VAL "24" -f,") [default
= 0] "; LINE g0
30 IF g0="" THEN LET g= NOT PI: RETURN
33 FOR n= SGN PI TO LEN g0: IF g0(n)<"0" OR g0(n)>"9" THEN GO TO
VAL "28": NEXT n
40 LET g= VAL g0: IF g<NOT PI OR g>VAL "24" -f THEN GO TO VAL "21"
41 RETURN
92 SAVE "a:pic.scn" CODE b,c: GO SUB VAL "94": CLEAR VAL "65367":
LOAD "rainbow.bas"
94 POKE VAL "23606",NOT PI: POKE VAL "23607",VAL "60"
96 PAPER VAL"7": BORDER VAL "7": INK NOT PI: RETURN
```

## DISC CATALOGUE

In order get a neat and uncluttered disc catalogue, I suggest the following steps -

```
CAT
'ARTIST
'COMP
'RAINBOW
'SPRITE
ARTIST.SCN
DISK
```

•• Rename ARTIST, COMP (the screen compressor), RAINBOW.BAS and SPRITE (the sprite designer) as 'ARTIST, 'COMP, 'RAINBOW and 'SPRITE respectively. The reason for starting these filenames with apostrophes is to make them stand out together as a group at the head of the disc catalogue, and not all mixed up with your SCREENS filenames. Remember to adjust line 92 in the listing on the previous page accordingly.

•• Rename SCREEN as ARTIST.SCN for consistency with the general principle of giving all SCREENS files an ".SCN" extension (or any other extension you prefer).

•• MOVE the Artist "BASIC" program and all the machine code files (ARTCODE.BIN, RAINBOW.BIN &c. &c.) to User Area 1 (see +3 manual page 146), e.g. with the command MOVE "BASIC" TO "1a: BASIC". These files will then show up only with CAT "1a:" and will be invisible to the normal CAT catalogue.

•• Modify the LOAD lines in the various Basic loader programs to take account of the above changes. The lines needing modification and the auto-run lines are shown in the table below. Thus, for example, in line 120 of 'RAINBOW we would change LOAD "RAINBOW.BIN" CODE TO LOAD "1a:RAINBOW.BIN" CODE (with a similar change in line 4 of the Basic listing on the previous page), and re-SAVE "'RAINBOW" LINE 100.

•• You might perhaps wish to add any other SCREENS-generating programs you have (e.g. light pen, video digitizer) to create a comprehensive art utilities disc.

•• In order to get fast loading times and more room for SCREENS, use a disc formatted with HIFORMAT (+3 PD Library no. 98).



invisible cat?



## MENU PROGRAM



One suitable menu utility for our particular purpose is Chevron Software's CATLOADER which was published in "Outlet" (+3 version) no. 33 (May 1990). It displays a letter or number against each filename in the disc catalogue, and a single touch on the corresponding key is all you need to load the file provided it's in Basic. SCREENS files can be loaded similarly provided the GRAPH key is tapped first. Moreover, it is possible to hack the CATLOADER BASIC so that SCREENS files with, say, an ".SCN" extension can be loaded without using the GRAPH key, thereby giving you the facility of browsing the SCREENS on your disc with single keypresses. (You could apply a similar technique to your clip art discs by programming CATLOADER for one-touch loading of filenames beginning with "CLIP".) If the program filenames begin with an apostrophe as suggested above, then they will always retain the same position at the head of the catalogue and thus always be loaded with

the same keypress, e.g. "0" for 'ARTIST, "2" for 'RAINBOW etc. Other handy features of CATLOADER include selective erasure and copying of files, the selection again being made by single keypresses.

In the simplest scenario we would of course use CATLOADER as our DISK program, but there's a more elegant way of doing it. Put CATLOADER into User Area 1 with the filename "CATLOADR" and, for the DISK program, use the listing shown below. Note that line 1001 cannot be typed in as shown. It has to be extracted from the DISK program of any of issues 27 - 34 of "Outlet" (+3 version). This is because the line contains machine code concealed in the REM statement, the effect of which is to prevent a return to the LOADER menu in the event of any subsequent crash-out to Basic. Instead you find yourself securely in the +3 Basic editor and there is no danger of losing all your work by accidentally rebooting DISK.

program	lines to alter	auto-run
'ARTIST	30, 50, 60, 90, 110	90
'COMP	215, 9900	9900
'RAINBOW	120	100
'SPRITE	90	90

```
10 CLEAR 4#4: GO SUB 1001: CLEAR 65367
20 PRINT AT 11,12: FLASH 1, "LOADING"
30 LOAD "1a:catloadr"
1001 RANDOMIZE USA VAL " PEEK 23637+
256# PEEK 23630-0042": RETURN:
REM poke+3 CODE
```

## DTP COLOUR PRINTING

Also, you can't put LC10C colour control codes into TYPELINER documents, or rather you can, but Typeliner haughtily disdains to take a blind bit of notice, just as it ignores all commands apart from the handful listed on page 19 of the manual. PCG say it would take a major rewrite of the software to overcome this. What hope of that now Uncle Alan has put the skids under us? The most you can do is to print the whole document in a single colour. This is achieved by entering Basic (by pressing symbol shift-E at the file-handling menu), issuing the control code while the printer is online, then returning to Typeliner and printing. For instance, to print in green you would enter -

```
LPRINT CHR# (27) + "r6";
```

With WORDMASTER, however the situation is more hopeful. Not only can you insert control codes and graphics, but you can also print in two or more columns thanks to the LC10C's "Return to top of current page" command (ESC FF - see page 74 of the manual). This command works only when continuous paper is fitted, and feeds the paper backwards to the top of the current page.

In a Wordmaster command line it would be expressed as -

```
>L 27 12
```

Thus, for example, you could set up a "page" 36 columns wide with left margin 2, followed by a command line for ESC FF and then a second "page" again 36 columns wide but with the left margin set at 42. After the first "page" has printed, the paper automatically winds back and the second "page" prints out alongside as a parallel column. (For this to work, form feeds must be set OFF in the print menu.) This isn't full DTP, but it's the closest you're going to get if you want to print in different colours.

The ESC FF command is also very useful in Basic where it translates as -

```
LPRINT CHR# (27) + CHR# (12);
```

You can use the line graphics characters in IBM character set #2 to print the framework of a multi-column table and then, after a rewind with ESC FF, fill up successive columns with calculated data, rewinding after each column - ideal for fancy calendar printouts!



## CONCLUSION



**R**AINBOW is a unique and splendid utility for the +3, which has broken the monopoly on colour screen dumps hitherto enjoyed by the +D and Disciple, and confirmed the LC10C as the printer of choice for the +3. The new version of Rainbow is much more flexible than the original, which did not have many of the options now provided and could not print the bottom two lines of the screen, so if you have the old version, I would definitely recommend upgrading.

As a budget printer, the LC10C is itself distinguished by many excellent qualities including front panel control of many important functions, "paper parking" which enables single sheets to be fed without disengaging continuous paper from the sprockets, reasonable choice of fonts, a variety of scientific, graphics and foreign language characters, and an unusually extensive command set. And, no need to waste your precious colour ribbon on everyday word-processing - a common-or-garden LC10 black ribbon will do nicely! The LC10C is still obtainable for less than £200 including VAT & delivery - see the mail order ads in Computer Shopper and New Computer Express.

Colour printing is fine in text mode, but in graphics mode you begin to appreciate the limitations of a 9-pin dot matrix printer with a four-tone ribbon. However, as long as you're not expecting the output of an expensive laser or ink-jet printer, you should be happy enough with the results. Rainbow and the LC10C go together like a horse and carriage - "you can't have one without the other" (Who remembers that song?). And at 26-95 inclusive, Rainbow is remarkable value for money. Owners of the original version of Rainbow can upgrade by returning their disc with a remittance for £1 only.

Available from -

**Garner Designs**  
**57 Lovers Walk**  
**Dunstable**  
**Beds**  
**LU5 4BG**

## **STOP PRESS STOP PRESS STOP PRESS**

As a follow-up to last month's News Watch column alerting +3UG members that MGT's Lifetime 3.5" disc drive is now available from EEC Ltd, I have been in contact with the managing director of EEC Ltd, Bill Richardson. Mr Richardson says his company is selling the drive with a lead for the +3 although a few customers had reported that they have had problems getting the drive to work properly. The problem has now been sorted out after a +3UG member had written to EEC after seeing an article in issue 11 of +3 Contact saying that the lead has to be inserted in the +3 the wrong way up. EEC were not previously aware of this and contacted me to clarify the situation.

Thankfully, between the both of us the problem has been solved and EEC will be providing ammended instructions with each Lifetime drive so that +3 users can get it working properly. Bill Richardson explained, "The leads we use are the same as MGT's but we were not aware this problem existed for +3 owners. May I apologise for the inconvenience caused and hope the compromise of inserting the lead upside down makes +3 users happy with their purchase".

The +3 Users' Group are also pleased to announce a new working relationship between EEC Ltd and ourselves. As far as +3UG members are concerned these include discounts, the first being for those who wish to obtain a second 'back-up' Spectrum +3.

EEC are selling professionally refurbished +3s with a guarantee for just £149.95. However, +3UG members can obtain them for £144.95, if, with your order, you enclose a photocopy of this article as proof of +3UG membership. EEC Ltd also sell PSUs and also hardware like the Interface 1 and microdrives (which to some degree can be made compatible with the +3 using the Fixit device described in the Mail Order column on page 19. EEC's range of goods for the Spectrum will be detailed in next month's +3 CONTACT.

I can also announce that the +3UG have an exclusive 'in-box' agreement with EEC which will see full details of the +3UG being included with each +3 EEC sell. We hope this arrangement and EEC Ltd's reputation are the purveyors of Spectrum hardware will enable many more +3 users to join the +3 users' Group.

EEC Ltd's address is: 18-21 Misbourne House, Chiltern Hill, Chalfont St.Peter, Bucks, SU9 9UE.

# Helpline

"Over the last year or so, I have had occasional disks go down with the dreaded 'Missing Address Mark' error report, usually I have had my back-up disk to hand but of course not always upto date," Writes Don Fairhall from Clacton, "Recently, however my Tasword +3 working disk has failed to load and given a new message: 'Drive A Track 1, Sector 2 No Data' and although I have a back-up of the Tasword +3 program, the actual letters also stored there are unavailable. I would be glad of your advice."

Probably the easiest way to recover your disk (and what I did when the same thing happened to my wordpro) is to copy the files that you haven't got a backup of onto a separate disk. For example, if you had a file called "LETTER" then you could type COPY "LETTER" TO "B:". When the +3 asks for B: insert the blank disk. You may find it easier to copy them to the RAM disk first, then to the blank disk. Whenever the +3 says "Drive A, Track n, Sector n, No Data. Retry, Ignore, Cancel" just press I to ignore. There may be a small amount of corruption in one or two files, but otherwise everything should be OK.

Once you have managed to copy your letters, and anything else without a back-up, from the corrupt Tasword disk onto the blank disk, you can then FORMAT the Tasword +3 disk. (You may want to use Supermat or HiFormat to squeeze a few extra K onto it). Then you can copy the letters across from the blank disk back to the re-formatted Tasword one. Finally, you can copy your Tasword +3 backup onto your master disk.

If all is well, everything should now work. It sounds complicated at first but is a fairly simple process that works surprisingly well.

Last month I promised you some more POKES from John White, and here they are, a lot of them are

useful for "program protection":

POKE 23744,0: POKE 23745,0 Resets when EDIT is pressed (48K mode only)

POKE 23744,181 Vanish cursor and lock keyboard

POKE 23745,181 Pressing EDIT causes a lookup

POKE 23614,0 Crashes when down cursor or STOP is pressed in an input statement

We've also got some POKES by J.R.Cleveland to improve the ARTIST #: POKE 29666,48 Change the INK colour of CAT and ERASE in the storage menu from green to black.

POKE 65023,10 To send line feeds to the printer during screen dumps.

POKE 30306 to 30310 with 68, 65, 84, 69, 76 respectively to make the third item in the EXTRAS menu read "DATEL MOUSE".

He also says that the Sprite Designer can be modified in the same way as the ARTIST # (described last month) to default to mouse control. Set the control method to mouse and force a DOS error (eg, by trying to access a disk when there is no disk in the drive) and press C when asked "Retry, Ignore, Cancel" to exit to BASIC. Then the code can be saved with:

```
SAVE "SPCODE.BIN" CODE 25232,40304
```

If you've got any +3 problems, hints or tips then send them to: Gary Stimson, 4 Fox Covert Drive, Roade, Northants, NN7 2LL. Enclose a sae for a speedy reply. Help me to help you - send all the relevant info including any commands that you've tried, listings, even photocopies of the manual if it's a hardware related problem, that way I can pinpoint the problem more easily.

For quick questions, the Telephone Helpline is open on Wednesdays and Fridays between 2pm and 4pm only. Call (0582) 472067, it may help if you're sitting in front of your +3 when you call.



# MAIL ORDER

## TASWORD +3

The ultimate word processor for the Spectrum +3. A mass of features are included, such as 60K document length, full text formatting, 64 character display, full print out options, data merge, and built-in help facility. A must for all +3 users.

Description	RRP	Our price
Tasword +3	£24.99	£18.99

## TASCALC +3

This spreadsheet program has hundreds of uses, from accounting for small businesses to home accounts and such like. A whole wealth of features are included, such as statistical graph output and a massive 64K data capacity.

Description	RRP	Our price
Tascalc +3	£24.99	£18.99

## DUST COVER

Keep your Spectrum +3 clean and safe in this smart high quality dust cover. Make your +3 a "dust free zone".

Description	RRP	Our price
Dust Cover	£5.99	£4.90

## MAGNUM Light Gun

The OFFICIAL Spectrum lightgun, as recommended by AMSTRAD. Just point the gun at the screen and shoot! Comes with 6 great lightgun-compatible games.

Description	RRP	Our price
Lightgun +3	£29.99	£23.00

**Spectrum Power Supply Unit - £25.00**  
**Box 10 Maxell/Amsoft 3" discs - £21.61**  
**Mouse Mat (Red/Blue) - £5.99**  
**Mouse Holder - £2.99**  
**TV to Computer Ariel Lead - £2.75**  
**DEV PAC +3 (M/C Assembler) - £15.99**  
**MINI OFFICE - £2.99**

All current games available on disc and tape. Full price games all at our standard 10% discount from the RRP. Budget games are as follows: £2.99 games cost £2.49 and £3.99 games cost £3.45.

As well as recent software, we can obtain copies of most older games. Please telephone us first with your requirements and we will do our best to track a copy down for you.

# MAIL ORDER

## *Spectrum Hardware Bargains!!!*

The +3 Users' Group is pleased to announce that it has teamed up with BG Services to offer the excellent **VTX5000** modem and *The Fixit*.

### **VTX 5000**

The VTX5000 is still, after many years, *the* Spectrum modem. Its simple 'plug in and go' features means that it can be used by absolutely *anyone*. The world of modem communications is a large one, and with the VTX5000 you can access hundreds of on-line services.

Ease of use is enhanced by the fact that the VTX5000 contains all the communications software you need *built-in*. All you need to do is connect the VTX5000 to your +3 and the software instantly appears in your computer and the whole set-up is ready for immediate use.

Although the VTX5000 is the most widely used Spectrum modem and is highly reliable, we are offering them to +3UG members for an amazing **£20.00**.

Also included with each modem are full operating instructions, a list of on-lines services for you to use and an application form for membership of *Prestel* and *Micronet*.

Anyone serious about their Spectrum +3 should snap one VTX5000 up quickly as the last remaining stock in existence on the open market won't last long at our price of just **£20.00**.

# MAIL ORDER

## The Fixit

BG Services' *The Fixit* is an excellent little device which attaches to the expansion port of your +3 and allows previously incompatible Spectrum hardware add-ons to work. The incompatibility was caused by AMSTRAD when they 'redesigned' the +3's expansion port.

Although *The Fixit* doesn't claim to make every incompatible add-ons once again compatible in 128K mode, it allows the majority of interfaces to work in 48K mode (at least).

Devices made compatible with *The Fixit* include: **INTERFACE 1, Plus D** disk interface, **MULTIFACE 1**, 48/128 version of the **VTX5000** modem (*Please Note: the VTX5000 modems advertised on the opposite page are fully +3 compatible and do not need The Fixit*) and various joystick interfaces. One device that *The Fixit* cannot make compatible on the +3 is the **Opus Discovery**.

If an incompatible add-on you have is not included in the above list then there is a very good probability that *The Fixit* will be able to make it compatible on your +3.

For the +3 user left with unusable hardware after upgrading to the +3, *The Fixit* is absolutely essential.

*The Fixit* comes with full instructions showing you how to get the best from it with hints and tips about using various interfaces on your +3.

Only £9.50 inc P&P

## HOW TO ORDER

Ordering any of the items on the previous three pages is simple, just write stating what you wish to order enclosing a cheque/PO/bankers draft made payable to "NEW ASPECTS".

Please note: If you are ordering the VTX5000 modem and/or *The Fixit* then postage and packing is FREE, If your order is for other items as well then you must add £1.50 to your order to cover postage and packing.

Post your order to: **NEW ASPECTS,**  
57 Lovers Walk,  
Dunstable,  
Beds,  
LU5 4BG.

Goods despatched next day (subject to  
stock and funds clearance).

# GAMES ZONE

After the mini-review of SIM CITY in last month's Games Zone column, I've decided to give this program a full review.

**SIM CITY** By INFOGRAMES Price: £12.99 (tape)/£17.99 (disc)

Although +3 CONTACT shut the door to games reviews ages ago, I have always left the door slightly ajar for games which rely on your intellect rather than lightning-fast coordination. Infogrames' SIM CITY is such a program.

To be quite honest, Sim City defies to be classed as a game, although hardened gamers will like it, instead, it can only be described as the ultimate social and economical simulator ever designed. Originally released in the USA, Sim City picked up hoardes of awards for innovation and received critical acclaim for its accurate representation of how a settlement develops and evolves from humble village in the middle of no-where into a thriving capital city. Its accuracy was acclaimed to such an extent that several major education establishments in America now use Sim City to teach students about town planning and economic development in cities.

Sim City puts you in the role of mayor with a budget of \$20000 (this figure is reduced on harder skill levels) and the task of building a thriving city. You begin the game with nothing, except for an island to start building your city upon. Your city must basically consist of three types of 'zones'. These are Residential, Commercial and Industrial. Residential zones are where the population of your city live, and where churches and hospitals are built. Commercial zones are where the population works and shops. Industrial zones serve two purposes, they help to maintain your commercial zones and the help to establish an external export market.

Once you start to place the first residential, commercial and industrial zones, you must now build a power station to generate electricity for your city. Once this is done you must lay power lines from your power station to the various zones in your fledgling city. Once the power is 'on-line' you can start building roads between your residential, commercial and industrial zones which will start the flow of people moving into your residential zones. When enough people have moved in your commercial zone (which will have remained unused upto now) will spark into life with the building of offices and shops. A direct result of this will be the building of factories in your industrial zones.

The main attraction of Sim City is that all this development takes place in pseudo-real time (one month lasting between 30 seconds and a couple of minutes depending on what simulation speed Sim City is set to) and so by watching a specific area of your city you can see houses being built, bigger and better office blocks being built and so on. Of course, all this building takes money and so your \$20000 budget slowly gets lower and lower.

The economic side of the simulation helps you to manage the finances of your city. Firstly, each citizen of your city has to pay tax, which you can set from between 0% and 20%. The economic growth of your commercial and industrial zones are generate revenue and extra jobs, which in turn attracts more people to your city, which in turn increases your tax revenue. However, tax the population too highly and they start to move out and before long your city will start to dwindle to the dust-bucket in the middle of no-where it originally was.

Social factors can also cause your population to lose confidence in your abilities and move out. For example, placing residential zones near power stations and industrial zones will annoy the inhabitants because of the pollution they are exposed to. Areas with a high crime rate also force people to move out. However, by building police stations you can keep crime at bay, but financing police stations each year is a costly exercise. High house prices also provide a catalyst for people to move out, this is very common in residential zones placed near commercial zones or near the coast.

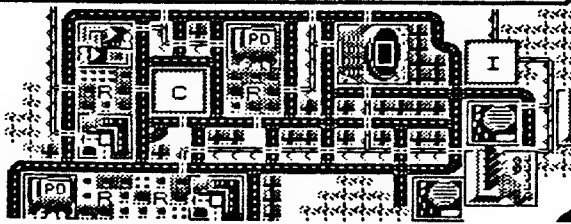
These and other factors can all contribute to a mass exodus from your city if planning early in a city's lifetime is done badly. However, you have certain things to combat this and make the quality of life for your population better. One major thing you can do is to build parks near to your residential zones, another is to build a stadium which attracts more people to move to your city. You can also attract people and commerce to your city by building an air port, which once built you can see planes fly toward it and then take off again.

As well as the many social and economic factors which shape the future of your city, there are several

## SYSTEM OPTIONS DISASTERS WINDOWS



POWER LINES \$5      MAY 1944  
DUNSTABLE      FUNDS \$2948



lifetime is done badly. However, you have certain things to combat this and make the quality of life for your population better. One major thing you can do is to build parks near to your residential zones, another is to build a stadium which attracts more people to move to your city. You can also attract people and commerce to your city by building an air port, which once built you can see planes fly toward it and then take off again.

As well as the many social and economic factors which shape the future of your city, there are several

physical aspects of your city which need considering. Firstly, transport routes need to be planned very carefully indeed. Not only will building mass networks of roads be costly to maintain each year, but your will encounter terrible traffic congestion when your city grows larger which will cause some citizens to move away - the situation which London is facing at the moment. An option is to build a railway system, which although is more costly to build and maintain it does relieve your road system. The geography of the island must also be considered when initially choosing a site for your city. For example, if you build it near the coast you can build a sea port to increase industrial and commercial revenue, but this has the side effect of increasing housing prices. Selecting a site where you will have to build bridges across rivers of lay power cables underwater will be costly and hard to maintain.

All these factors and more, must be considered if your city is to thrive and not fall apart. The fact that your city evolves before your very eyes in pseudo-real time will soon have you emersed in Sim City. The huge number of options and strategies you choose to build your city also mean that Sim City is frighteningly addictive.

If all this wasn't enough to keep you going for the next century or so, you can test your nerve under certain 'disaster' situations. These can be set to happen at your command or naturally throughout the course of your city's lifetime. The list of disasters consists of the following: fire, flood, earthquake, air crash, tornado, nuclear meltdown. The air crash disaster can only happen if you have built an air port and can be disastrous if there is a residential area in the plane's flight-path. Nuclear meltdown can only occur if you have built nuclear power stations as opposed to coal power stations. Nuclear meltdown is the most disastrous thing that can occur as it leaves vast areas of the island completely uninhabitable. The other disasters cause fires which rage from zone to zone unless you have built fire stations. In some cases even this may not be enough, and you must use the bull-dozer option to clear areas of land to isolate the fires to stop them spreading. You know you really are a good city planner when you recover from a major disaster without any loss in confidence from the population and without any loss in commercial growth.

The first thing you'll notice from the screenshots is Sim City's lack of dazzling graphics and flashy effects. This does not detract from the game in any way whatsoever. The game was designed to be written around a set of social and economic development rules, not around a set of great graphics and realistic sound effects.

Probe Software have to be congratulated for the accuracy of the conversion of Sim City from the Atari ST and Commodore Amiga versions to the Spectrum. The game is the most challenging and addictive game I've ever seen on any computer format. The flexibility you have in building a complete self-sufficient city will keep you interested for a very long time. If you think that all this social-economic city planning is a bit past you, then Sim City's excellent manual will give you a complete insight in how cities grow and the how all the factors can influence things.

Although Sim City is quite expensive, I advise you to get the disc version as it allows you to save and load mid-simulation positions straight to disc.

Although Sim City will not achieve the success it deserves because it is not a shoot-'em-up game, Sim City is recommended to everyone.

## RATING: 9/10

By DANIEL GARNER

### BELOW:

The icons at the top of the main Sim City screen are accessed via a pointer which is moved around the screen using the keyboard or joystick. The icons are as follows (from left to right): BULLDOZER, BUILD ROADS, BUILD POWER LINES, BUILD RAILWAY, BUILD PARKS, BUILD RESIDENTIAL ZONES, BUILD COMMERCIAL ZONES, BUILD INDUSTRIAL ZONES, BUILD POLICE STATION, BUILD FIRE STATION, BUILD STADIUM, BUILD POWER STATION, BUILD SEA PORT, BUILD AIRPORT.

SYSTEM OPTIONS DISASTERS WINDOWS SYSTEM OPTIONS DISASTERS WINDOWS  
 + +

POWER LINES \$5 MAY 1932  
 DUNSTABLE FUNDS \$1896  
 ZONES NEED POWER



DISASTER! A major earthquake has struck! Fires near the nuclear power station have cut power lines to the main residential zones. A few minutes later .....

POWER LINES \$5 SEP 1932  
 DUNSTABLE FUNDS \$1896



Help! The fires have spread, destroying houses, a police station and your power station. With not enough money left to build a new one...you've had it!



# PD News

## IMPORTANT

As from this month, the PD library will be based at the usual +3UG address, i.e. 57 LOVERS WALK, DUNSTABLE, BEDS, LU5 4BG.

**THE OLD ADDRESS WILL NO LONGER APPLY**

The decision to do this was for a couple of reasons, the main one being that the centralisation of all the +3UG's services will be less confusing to new members. To accompany the new address we're also improving the service slightly and we also introducing several new excellent European programs. These include a BASIC Compiler, 32 x 42 screen display routine, a routine which allows you to write BASIC programs using any word processor and a couple of games. You will be the first people this side of the North Sea to be able to obtain these (and the many other European programs which are in preparation) and so I hope you all take advantage of them all. Another new feature of the PD library are the *PD Gold* packages. These are basically compilations of similar types of PD software. For example, the *Comms Gold* pack consists of a disk containing all the communications programs in the library, the *Machine Code Gold* pack consists of a disk containing all the programs in the library which will be of use to machine code programmers, and the *Disk Gold* pack which consists of a disk all the disk utilities in the library. Each of the *PD Gold* disks also comes with a booklet which contains full instructions and technical information for all the programs on the disk which eradicates the usual hit-and-miss usage associated with PD software.

There are three *PD Gold* disks available at present, *Comms Gold* and *Disk Gold*. Each one comes on a 3" disk with the accompanying booklet and cost just £4 each.

***Comms Gold*** Firescroll, Fireview 2, Fired, Fireview 2 Convert, Dr.Scroll, RS232TR, Radio Comms, Fireview (VTX711), Dr.Scroll 2.

***Disk Gold*** Menu/Cat Utility, Boot Sector Modifier, Headload, Headcopy, Cat All, Parameters, Set Default Utility, Autoloader, +3 Disk Checker, Recover, Supermat, Hi Format, C-DOS.

***Machine Code Gold*** Code Shifter, REM Store, Jacksoft Assembler, Monitor, Disassembler, REM Maker, MC to BASIC, Z80 Disassembler, BASIC Compiler

# PD Library List

Page 1

No	Title	Author	K	Description
1	Noughts and Crosses	Gary Stimson	12	Can you beat your computer at such a simple game?
2	Review!	Gary Stimson	5	This program could prove invaluable if you're learning a language
3	Menu/CAT Utility	Brian Gaff	8	Allows you to perform file operations with ease
4	Boot Sector Modifier	Brian Gaff	2	Allows you to alter a disk's boot sector...Use with caution!
5	Headload	Brian Gaff	2	Alters a file's header (e.g. BASIC to m/c). Great for hackers!
6	Headcopy	Brian Gaff	2	Copies tape headers to disk
7	Cat All	Brian Gaff	3	CAT's all 16 user areas of a disk, including hidden files. Print option
8	Parameters	Brian Gaff	1	Sets the disk drive parameters to make it faster and quieter
9	Set Default Utility	Brian Gaff	1	Lets you set the default user area in BASIC - normally not possible
10	April Menu!	Gary Stimson	2	Displays a fake +3 main menu, which could be altered as required
11	CAT	Daniel Gerner	2	Stores a disk catalogue for use in your own programs
12	K Free	Daniel Gerner	2	When called, returns with the number of K free on a disk
13	REB Store	Chevron Software	12	Stores upto 7K of code in a BASIC REB statement. Great utility!
14	Axel F	Daniel Gerner	5	Excellent 128K version of the famous tune
15	BASIC Compressor	Daniel Gerner	6	Compresses BASIC programs by putting VAL "" around numbers
16	Screen Planner	J.Rimmer	9	A collection of routines to access the screen
17	Sort Demo	J.Rimmer	5	Timed demo of 7 useful sorting routines
18	Firearc	Paul Clewett	14	Great scrolling terminal software for the VTX5000 modem
19	Fireview II	P.Clewett/K.Beddoe	27	Excellent viewdata terminal software for the VTX5000
20	Firev	Unknown	3	Transfers Editor frames to Fireview and vice-versa
21	Fireview 2 Convert	Unknown	4	Sets up program 19 to your liking (character sets, etc)
22	Prognail	Keith Beddoe	5	Allows VTX5000 users to send programs via Viewdata mailbox
23	Softmail	Keith Beddoe	5	Receives program sent with program 22
24	Date 2 Dry	David Wilson	3	Tells you the day of the week for a 20th Century date
25	Ultra Clear A Screen	Owen Brown	3	Super fast machine code clear screen routine!
26	Label maker	Keith Fize	3	Stores names and address for label printing
27	TV Trivia	Keith Fize	32	Telly quiz with different categories for upto 4 players
28	The Bash	Owen Brown	7	Good SCREENS of our own planet, viewed from space
29	Smash	Owen Brown	7	Fenociferl smash SCREENS
30	Secureit	Daniel Gerner	6	Makes numbers in a program appear differently to a hacker
31	AutoSecureit	D.Gerner & G.Stimson	2	Fast automated version of program 30
32	Logo	Owen Brown	1	Simple program to create interesting screens (not a LOGO language)
33	Vector 3D	Owen Brown	4	Allows you to experiment with vector graphics
34	Other Worlds	Geoff Westmouthe	51	A selection of screens with a screen editor
35	Vetrieve	Chevron Software	7	Enables more than one army to be served at a time
36	Spin II	Datin Software	23	A great block spanning puzzle game
37	Multi-Flash	Paul Monaghan	1	Psychodehic attribute scrolling!
38	Trn 48	Paul Monaghan	1	Use in your own programs to enter 48K mode without the error
39	Super Input	Paul Monaghan	1	Machine code input routine for use in your own programs
40	Muzik!	Paul Monaghan	6	Suprb 3-channel music in machine code
41	SpecTec Demo and Snake Game	Dave Gozell	30	A great Amiga-style demo PLUS the classic Snake game
42	Boot	Unknown	2	A machine code routine to completely reset your +3
43	Sound to Light	Daniel Gerner	7	TWO different sound to light converters
44	Kingfisher	Richard Sheldford	7	Colourful SCREENS of the bird of the river banks
45	Countryside Scene	Richard Sheldford	7	Excellent SCREENS of the Cornwall countryside
46	Autoloader	Marc Reed	13	Useful utility that automatically adds a loading menu to your disks
47	Basylis	Daniel Gerner	2	Produces neat, structured and easy to read BASIC listings
48	Calendar	Daniel Gerner	2	Produces a neat calendar for any month, with a print option
49	+3 Disk Checker	Daniel Gerner	9	Checks disk space and that files are not corrupted
50	Fonts	D.Gerner & P.Gideon	8	3 Sick new character sets for your Speccy
51	Recover	Joe Worall	2	An essential program that will restore erased files!
52	Big Text	P.Gideon	2	Allows text to be displayed in a variety of different sizes
53	Screen Fade	Daniel Gerner	1	A very slick routine to fade the screen
54	Hex-Dec-Hex Converter	Daniel Gerner	2	Converts hexadecimal numbers to decimal numbers and vice versa
55	REB Address Finder	Daniel Gerner	7	For use with program 56. Finds address of a REB statement
56	64 Column Display	Daniel Gerner	4	Squeezes 64 characters into one line of the screen.
57	Chordata	Dave Rogers	17	Something to do with music, I'm not sure what, though!
58	Drawmaster	Geoff Panchard	23	A great pool-predictor PLUS a random story generator!
59	Axel F, The Sequel!	M. Kidd & L.Davis	10	Another Axel F tune
60	Clock	Lee Davis	3	Displays an on-screen analogue and digital clock
61	Cyborg	Lee Davis	7	Rather slow arcade-style game
62	Flippety Screen!	Lee Davis	2	Spins a screen. Takes a while to set up but the finished effect is good
63	Message Scroller	Lee Davis	2	This is ... or ... a message scroller!
64	Screen Storer	Lee Davis	1	Stores a screen in RAM to be recalled at will
65	Shape Maker	Lee Davis	1	Draws pretty patterns!
66	SPECalc	Lee Davis	7	Stuck market speculation game
67	Lee's Wordprocessor	Lee Davis	3	Very poor BASIC "word processor"
68	Speech Sampler	Lee Davis	2	Good machine code sampler
69	Fonts Galore!	D.Guard	28	24 excellent new Spectrum fonts
70	Ramnet	Brian Gaff	1	Alters the RAM disk cache and position
71	Crouch3	Chris File	12	Superb program. Crunches many file into one
72	Double Height Text	Daniel Gerner	2	Prints double height characters
73	INSTRS	Daniel Gerner	1	Gives your +3 a much needed INSTRS function ...
74	LEFTR, RIGHTS and MID\$	Daniel Gerner	1	... and LEFT\$, RIGHT\$ and MID\$
75	+3 to 128 Converter	Daniel Gerner	8	Converts +3/+2A BASIC commands to work on a Spectrum 128/+2
76	Denkdo	Brian Gaff	1	Program to DEREK and DOKE memory - great for hackers!
77	Oxygene	D.Guard	44	Excellent sampled music demo of Oxygene
78	Overkims	Wizard	19	Great 3D arcade adventure game
79	Morus Code Tutor	P.Gideon	5	Good program to help you learn Morse Code
80	Mouse Pointer Routine	D.Gerner	8	Allows a pointer to be moved using a Kompton/Gemba mouse
81	Datator	Unknown	1	No info available

New address: 57 Lovers Walk, Dunstable, Beds, LU5 4BG.

# PD Library List

Page 2

No	Title	Author	K	Description
82	Dr.Scroll	Chris Pile	10	Version of Dr.Scroll for the VTX7111 modem
83	Mailsort	Keith Beddoe	10	Programs 22 and 23 in one
84	RS232TR	Mike Suu	4	X-Loader/X-Modem transmission/receiver program
85	Tascol	Brian Guff	2	Sets up Tascoword 2 colours to your liking
86	Ureformer	Brian Guff	6	Converts worddata frames into Tascoword 2 files
87	Mega Blast	Daniel Gumer	9	A great sound to light converter
88	Compare	Unknown	4	Compares two files and erases if required
89	Hold k	Chevron Software	4	Great screen save utility
90	Code Shifter	Chevron Software	7	Relocates "unreadable" code
91	48 Retrun	Daniel Gumer	1	Goes from 48 to +3 BASIC retaining use of printer port
92	Hangman	Peter Naughton	18	A 2-player Hangman game with great graphics
93	Procras	Chevron Software	29	Excellent crossword editor complete with demo crossword
94	Supremat	Ian Cull	4	Format disks to 192K per side - 38K extra per disk!
95	CD Demo	Players Software	40	Am & truck musical extravaganza
96	Mmanager	Peter Naughton	16	An easy to use home accounting system
97	Radio Cosmos	ONS&N	16	16TH program for radio hams! Handles RTTY, SSTV and Morse!
98	Hi Postnet	Chris Pile	2	Postnet disks to 203K per side! A must for your collection!
99	Amiga Ball	Leaf Mortensen	7	SCREENS of the classic Amiga ball picture
100	Optical Illusion	Oswen Brown	7	A brilliant SCREENS of the infamous "waterfall"
101	Box Clever	David Tonks	29	A simple, but difficult and challenging puzzle game
102	Up The Wall	David Tonks	21	A maze style game with a twist!
103	AI Demo	D.Smith	2	Artificial intelligence game
104	Biorhythm	D.Smith	5	Creates a graph of your biorhythm for a given month
105	Sweeper Darts	D.Smith	9	An addictive darts game
106	Mastemind	D.Smith	9	A Mastemind game versus the computer
107	New Printer Routine	Daniel Gumer	8	Updated version of program 80 for the Keniptron/Genius printer
108	Jackoff Assembler	H.G.Zaschewitz	9	A powerful Z80 assembler with full text editor
109	Infobase	Gary Stanous	8	A very small demo of our PD Infobase
110	C DOS	Robin Clayton	2	Another program to make file operations easier
111	Capdisk	Anonymous	24	A huge collection of jokes - some dodgy
112	Digipix (Part 1)	Grant Panchard	57	A massive collection of digitised pictures
113	Digipix (Part 2)	Grant Panchard	57	All 3 parts are needed for the program to work.
114	Digipix (part 3)	Grant Panchard	57	Total length - 171K 20p per set (numbers), 40p (non numbers)
115	Mnatrix	K.Loudon	3	A short but good disassembler with a working print option
116	Diassembler	Dave Gorski	14	A great Z80 disassembler coping with the undocumented op codes
117	Ghost	M.Harris	5	46K Specky emulator - some '3 incompatible' games now work
118	Timed Tables	P.Smith	9	Times tables test against the clock - one for the kids!
119	Sums	K.Loudon	10	Test your (and your children's) maths
120	The Slink	Unknown	10	Got a problem? You need The Slink!
121	Freeview, VTX7111 Version	C.Pile&I.Goodwin	27	A VTX7111 version of the excellent Freeview II counts package
122	Dr Scroll 2 (VTX711)	Chris Pile	7	Enhanced version of Dr.Scroll (82) with CRC Xmodem
123	Graveyard	Oswen Brown	7	Spooky scene over a graveyard
124	Banner Maker	Keith Pile	4	Create large banners on Epson compatible printers
125	Music Trivia	Keith Pile	30	Music quiz for upto 4 players
126	Our Aunt Bessie	Keith Pile	11	An additive fruit machine simulator
127	The Rot	David Wilson	6	Searches memory for 3 ASCII codes
128	Objects	Keith Pile	7	Clip Art: Test tube, plastic dial, arrow, brush, syringe, graph
129	Japanese Patience	David Tonks	30	Version of the classic card game, Patience
130	Orakovanu	Leaf Mortensen	16	A different version of the classic Patience game
131	4 in a Line	David Tonks	17	A two player game of "Connect 4" with great graphics
132	Games	David Tonks	7	An amusing cartoon picture
133	Solitaire	F.Hampson	14	Specky version of the classic game
134	Solchesa	F.Hampson	10	A combination of solitaire and chess
135	Smooth Scroll	Paul Prescott	4	A useful upwards scrolling routine with instructions
136	Toolkit 50	Leaf Mortensen	9	An excellent toolkit with over 20 functions
137	Utility 1	Geoff Weannouth	8	Great utility with HDG editor, TV Testcard and font editor
138	Utility 2	Geoff Weannouth	18	Easy to use utility with block delete and full remember functions
139	Lineapit	Brian Guff	5	Splits a BASIC line in two to save retyping
140	Quezfil	Chevron Software	6	A fast fill routine complete with demo
141	Gross	Leaf Mortensen	7	A colourful fantasy picture
142	Oh Sh@!!	David Tonks	7	Amusing and brilliantly drawn cartoon screen
143	Convertit	Ken Davies	4	A program for those useful number conversions
144	ANSI Graphics	J.Doual	9	20 useful I/O's similar to the ANSI set found in PCs
145	RPM Maker	M.Goodman	3	Machine coders! Creates an empty RPM structure of any size
146	Mylinear	I.Miller	3	Something to do with linear interpolation, whatever that is!
147	Milgraph	I.Miller	4	More linear interpolation! Plot a graph of any function y=f(x)
148	HomeSec	Keith Pile	8	Easy-to-use program to assess the security of your home
149	Clip Art	Keith Pile	21	3 more screens of PD Clip Art
150	Botman	Chris Kelly	7	Pokey of the famous Botman logo
151	MC to BASIC	M.Harris	2	Great program to put machine code into DATA statements
152	Planet	K.Hardy	7	Reasonable picture of a planet and its moon
153	Ghosts 'n' Goblins	K.Hardy	7	Picture from the famous game
154	Memo	Peter Naughton	4	A very easy to use disk memo program, suitable for small children
155	Z80 Disassemblers	Axel Soltau	5	Yep, it's another disassembler!
156	Bomboloo	B. Oreasko & H.R.Jensen	19	A music demo with a selection of different tunes
157	Drumbeat	Unknown	2	A drum beat simulator allowing you to write your own beats
158	Snake	Unknown	6	Another simple but challenging game
159	BASIC Compiler	Unknown	8	An excellent program which converts BASIC to Machine Code
160	32 x 42 Screen Display	Unknown	3	Allows you to PRINT AT upto 32, 42
161	ASCII to BASIC	Unknown	2	Allows you to create a BASIC program using a word-processor
162	Trail Racer	Dan Nielson	49	Commercial quality arcade game
163	Crazy Cars	Unknown	21	Another commercial quality arcade game
164	MaxiRAM	D.Gamer & B.Goff	1	Enlarges drive M: from 38K to 62K

New address: 57 Lovers Walk, Dunstable, Beds, LU5 4BG.



# PD Library Prices

To order Public Domain Software from our list, simply follow these steps:

- Write down the program numbers of all the programs you require, preferably in numerical order. Programs names are not needed but can be included for verification if you so wish,
- Consult the table below and work out how much your order amounts to,
- Send your order, together with a blank 3" disk and a cheque or postal order made payable to Garner Designs to the new PD Library address: GARNER DESIGNS, 57 Lovers Walk, Dunstable, Beds, LU5 4BG.

+3UG Members      Non-Members

Titles 1K to 9K:	5p each	10p each
Titles 10K to 19K:	10p each	20p each
Titles 20K to 29K:	15p each	30p each
Titles over 29K:	20p each	40p each
CP/M Volumes:	50p each	£1 each

## Special Offer

If you spend more than £3 on PD software you may choose an additional Five programs (only those less than 29K long) for NO ADDITIONAL COST !!

**ORDER CHARGE:** Please remember to add 60p administrative charges to the final amount.

Have you got any Public Domain software that we haven't? If so, WE WANT THEM! Submissions to the library are always welcome and as long as the software is of reasonable quality it should find a place in the library.

So if you feel that you are able to contribute (whether it be your own creation, or something that you have obtainable from another PD source) then please do, we and the other members will be very grateful.

Anyone submitting software (including brief instructions please, preferably contained within the program itself or on a .DOC file) to the Library will receive two FREE programs of your choice for every one of yours that is included in the Library. If we don't require your software then you can have one FREE program from the software list (excluding CP/M volumes!). Also, if you would like to submit a CP/M Volume that we haven't got, then we will give you one FREE CP/M Volume of your choice or 50p worth of other software from our list. When compiling volumes, please note that they should be nearly 173K long (i.e. one side of a disk) and include all the relevant .DOC files.

## CP/M Software List

CP/M Volumes are available for only 50p each (non-members £1), when you send a formatted 3" disk. Each volume uses up to one side of a disk. Most files have an accompanying .DOC instruction file that can be read with COPY "name.DOC" TO SCREEN\$ or printed using COPY "name.DOC" TO LPRINT. Remember that CP/M Volumes will require a copy of Locomotive Software's (address: Locomotive Software, Allen Court, Dorking, Surrey, RH4 1YL. Tel: 0306 740606) CP/M Plus operating system and sometimes Mallard BASIC (which comes free with CP/M Plus). The following volumes are currently available:

Volume 1 - Features expanded disk catalogue, DICB-like disk maintenance utility, disk copying tool and a good WORDSTAR compatible wordprocessor.

Volume 2 - A MASSIVE collection of programs and routines. Includes: Anagrams, bio-rhythms, calendars, currency conversion, disk clean-up utility, file cruncher, library utility, Metamind game, ASCII file displayer, base conversion, file sorter and much more.

Volume 3 - Another huge CP/M collection. Including: File extractor, FXX0 printer tool, file printer, new RAM disk program, REM remover, find and exchange program, "Wordstar" cleaner and more! Something for everyone!

Volume 4 - Another great assortment of files: Useful text reformatter to print on BOTH side of fan-fold paper file chopped, control stripper, find word routine, sector editor (great for hackers!), word/line counter, Spacy/Mex (+3 version of Mex) and more! Serious +3 users will love this!

Volume 5 - If you're into programming, get this. This volume contains an excellent version of the popular C language (with files, including a code optimizer) PLUS a very comprehensive Z80 assembler.

Volume 6 - Contains a version of the industry standard MICROSOFT BASIC. Also, files for Volume 3's C Compiler and more.

Volume 7 - DBQ, a database with a powerful structured query language, designed for ease of use. Complete with 59K on-disk manual.

Volume 8 - DIMS, an easy to use card-index style database capable of mail merge, label printing, etc. Can even create mail merge files for Tassword +3.

Volume 9 - Contains DU49 - a superb multi disk formatter and PLOT 33 which will turn your printer into a graphics pictor!

# Resubscribe!

If your +3UG subscription is coming to an end, you should have received a letter with this issue of +3 CONTACT to inform you. So here's how you can resubscribe to +3 CONTACT and all the +3UG's services (with the usual splattering of special offers thrown in for good measure too).

***1 years subscription - £10.00 (Now normally £11.00 to new members)***

## **SPECIAL SUBSCRIPTION OFFERS:**

**1 years sub + "TASWORD +3"  
word processor - £28.24 (A saving  
of £6.75)**

**1 years sub + "Magnum Light  
Gun" + 6 games - £32.50 (A saving  
of £7.49)**

**1 years sub + 10 Maxell 3" discs -  
£32.00 ( A saving of £7.99)**

**1 years sub + "RAINBOW V2.0" (The Star LC-10  
colour printer utility) - £15.95 (A Saving of £1.00)**

**1 years sub + Spectrum Plus 3 Dust Cover -  
£13.90 (A saving of £2.10)**

***N.B. These special offers are valid only until 16th  
December 1990.***

**So if your subscription runs out next month or in the next couple of months then make sure that you resubscribe to ensure your supply of the best and only Spectrum +3 magazine and the use of the largest Spectrum +3 PD library this side of Saturn.**

# Next Month

Next month will see the full implementation of our new production set-up as described on page 2. This will make +3 CONTACT the most professionally produced Spectrum user group magazine, a fact that we are proud of. Although we will not be using PCG's Desk-Top Publisher, members wishing to contribute articles in that format can still do so - all we will do is use our system to improve and enhance the reproduction.

The contents of issue 17 of +3 CONTACT will include:

- *The start of a major series highlighting effective use of PCG's Desk Top Publisher,*
- *A full review of the new music composition package Childs Play,*
- *A feature on Music Writer's .MSC file format which will allow programmers to create Music Writer utilities,*
- *The return of the Classifieds columns - so send in your adverts now!*
- *Details of the program-packed issue 6 of GENESIS disczine.*
- *PD Review will return with a look at some of the best programs in our PD library,*
- *And much much more.*

*Remember: If your subscription is coming to its end then don't forget to resubscribe - withdrawal symptoms from +3 CONTACT can only be described as 'Cold Turkey'.*

# The Captain's Log

## ALL FORMATS SHOW

Many thanks to all those members who visited the +3UG's stand at the All Formats Fair on November 4th. The show was a huge success for us, and all the other Spectrum-supporting stands. In fact, the show had a distinct ZX Microfair feel about it, with stands including Format, ZX Guaranteed/Essential Software, PBT Electronics, SAM Computers, Spectrum Discovery Club, and of course our stand. Although there was a lot of SAM support at the show (including some new games, like the excellent PIPE MANIA which was converted from the Atari ST by the programmers here at NEW ASPECTS), the Spectrum's flag was still flying very high indeed with a multitude of bargains on offer; and by all accounts a good time was had by all.

Contrary to our success at the November All Formats, we cannot unfortunately attend the December 15th All Formats due to prior commitments, but all being well we shall have a stand at the February show.

## BEST CONTRIBUTOR(S)

I've decided to award this month's best contributor prize to two people. Firstly, Mr A.Fletcher wins for the second month running for his excellent speech synthesiser project. Secondly, a gargantuan appraisal of Garner Designs' RAINBOW utility and the extra technical information which some other reviewers wouldn't have bothered to investigate has earned Mr J.R.Cleveland the accolade of this month's joint best contributor.

Both Mr Cleveland and Mr Fletcher win an extra month's membership to the +3UG. Remember, you too could earn the accolade of best contributor, so get writing and send in your articles.

Finally, I hope you all like the new improved PD library service and our rapidly expanding range of mail order goods. We're doing our best to improve our services all the time, and I'm always delighted to receive suggestions from members about how our services can be improved even more.

Until next month....

D.G.